



ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 52

[EPA-R03-OAR-2017-0615; FRL-9607-02-R3]

Air Plan Partial Disapproval and Partial Approval; Pennsylvania; Attainment Plan for the Indiana, Pennsylvania Nonattainment Area for the 2010 Sulfur Dioxide Primary National Ambient Air Quality Standard

AGENCY: Environmental Protection Agency (EPA).

ACTION: Final rule.

SUMMARY: The Environmental Protection Agency (EPA) is revising its prior action that erroneously fully approved a state implementation plan (SIP) revision submitted by the Commonwealth of Pennsylvania (PA), through the Pennsylvania Department of Environmental Protection (PADEP), to EPA on October 11, 2017, and supplemented on February 5, 2020. The SIP revision provided a plan for attainment of the 2010 sulfur dioxide (SO₂) primary national ambient air quality standard (NAAQS) in the Indiana, Pennsylvania SO₂ nonattainment area (hereafter referred to as the “Indiana, PA NAA” or “Indiana Area”). The attainment plan submission included a base year emissions inventory, an analysis of the reasonably available control technology (RACT) and reasonably available control measure (RACM) requirements, enforceable emission limitations and control measures, a reasonable further progress (RFP) plan, a modeling demonstration of SO₂ attainment, and contingency measures for the Indiana Area. EPA is revising its prior action and is partially approving and partially disapproving the SIP. This action is being taken under the Clean Air Act (CAA).

DATES: This final rule is effective on [INSERT DATE 30 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

ADDRESSES: EPA has established a docket for this action under Docket ID Number EPA-R03-OAR-2017-0615. All documents in the docket are listed on the www.regulations.gov

website. Although listed in the index, some information is not publicly available, e.g., confidential business information (CBI) or other information whose disclosure is restricted by statute. Certain other material, such as copyrighted material, is not placed on the Internet and will be publicly available only in hard copy form. Publicly available docket materials are available through www.regulations.gov, or please contact the person identified in the **For Further Information Contact** section for additional availability information.

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SUPPLEMENTARY INFORMATION:

I. Background

On March 17, 2022 (87 FR 15166), EPA published a notice of proposed rulemaking (NPRM) for the Commonwealth of Pennsylvania. In the NPRM, EPA provided notice to the Commonwealth and the public and described the basis for its determination that it had erroneously fully approved the Indiana, PA SO₂ Attainment Plan, and proposed to revise its formal approval of the Plan to a partial disapproval and partial approval. See CAA section 110(k)(6). The formal SIP revision was originally submitted by Pennsylvania on October 11, 2017, and later supplemented on February 5, 2020. EPA took final action approving this attainment plan on October 19, 2020 (85 FR 66240).

On December 18, 2020, the Sierra Club, Clean Air Council, and PennFuture filed a petition for judicial review with the U.S. Court of Appeals for the Third Circuit, challenging that final approval.¹ On April 5, 2021, EPA filed a motion for voluntary remand without vacatur of its approval of the Indiana, PA SO₂ attainment plan. On August 17, 2021, the U.S. Court of

¹ *Sierra Club, et. al v. EPA*, Case No. 20-3568 (3rd Cir.).

Appeals for the Third Circuit granted EPA's request for remand without vacatur of the final approval of Pennsylvania's SO₂ attainment plan for the Indiana, PA NAA, and required that EPA take final action in response to the remand no later than one year from the date of the court's order (i.e., by August 17, 2022). This action finalizes EPA's response to the court's order.

II. Summary of SIP Revision and EPA Analysis

In accordance with section 172(c) of the CAA, the Pennsylvania attainment plan for the Indiana Area includes an emissions inventory for SO₂ for the plan's base year (2011) and an attainment demonstration. The attainment demonstration includes the following: (1) analyses that locate, identify, and quantify sources of emissions contributing to violations of the 2010 SO₂ NAAQS; (2) a determination that the control strategy for the primary SO₂ sources within the nonattainment areas constitutes RACM/RACT; (3) a dispersion modeling analysis of an emissions control strategy for the primary SO₂ sources contributing to SO₂ concentrations in the Area (Keystone, Conemaugh, Homer City, and Seward) purporting to show attainment of the SO₂ NAAQS by the October 4, 2018, attainment date; (4) requirements for RFP toward attaining the SO₂ NAAQS in the Area; (5) contingency measures; (6) the assertion that Pennsylvania's existing SIP-approved new source review (NSR) program meets the applicable requirements for SO₂; and (7) the request that emission limitations and compliance parameters for Keystone, Conemaugh, Homer City, and Seward be incorporated into the SIP.

On February 5, 2020, in response to comments submitting during the proposal's public comment period, PADEP submitted supplemental information in support of the attainment plan. The February 5, 2020 submittal included: (1) a supplemental air dispersion modeling report; (2) supplemental air dispersion modeling data; (3) a supplemental air dispersion modeling protocol; (4) a meteorological monitoring plan; (5) meteorological monitoring data; (6) meteorological monitoring quality assurance, quality control, and audit reports; (7) Clean Air Markets Division (CAMD) emissions data for 2010–2018; and (8) Continuous Emissions Monitoring (CEM) data for 2010 through the third quarter of 2019. The supplemental air dispersion modeling used a

more refined model receptor grid than that in the original submittal, meteorological data collected near the controlling modeled source (Seward), and more recent (2016–18) background concentrations from the South Fayette SO₂ monitor (the monitor used to determine background concentrations in the original modeling analysis). In order to allow for public comment on this supplemental information and modeling, on March 9, 2020 (85 FR 13602), EPA published a notice of data availability (NODA) for the February 5, 2020, submittal.

EPA now has determined that it was in error to fully approve the Indiana, PA SO₂ attainment plan, and is revising and correcting its prior action in the same manner as the prior full approval without further submission from the Commonwealth. See CAA section 110(k)(6). EPA is retaining the approval of the emissions inventory and nonattainment new source review (NNSR) program requirements, and is finalizing disapproval of the attainment demonstration, RACM/RACT requirements, RFP requirements, and contingency measures.

Other specific requirements of section 172(c) and the rationale for EPA’s proposed and final action are explained in the NPRM, and its associated technical support document (TSD), and will not be restated here.

III. EPA’s Response to Comments Received

EPA received two sets of comments on the notice of proposed rulemaking for this action. A summary of the comments and EPA’s responses are provided below. To view the full set of comments, refer to the docket for this action, Docket EPA-R03-OAR-2017-0615.

Comment 1: The commenter disagrees that the SIP did not include an assessment showing that the longer-term average limits for Keystone and Seward are of comparable stringency to the one-hour Critical Emissions Value (CEV). The commenter believes that Appendix C of EPA’s 2014 Guidance for 1-hour SO₂ Nonattainment Area SIP Submissions² (“2014 Guidance”) is a statistical approach and is a surrogate approach that was justified by

² EPA Guidance for 1-hour SO₂ Nonattainment Area SIP Submissions, April 23, 2014, www.epa.gov/sites/default/files/2016-06/documents/20140423guidance_nonattainment_sip.pdf.

Appendix B, such that Appendix C is a theorem and Appendix B is the proof. The commenter states that the Randomly Reassigned Emissions (RRE) modeling approach provides a very robust demonstration of a comparably stringent relationship between the modeling results of the CEV analysis and the RRE analysis. The commenter believes the facts below support that the longer-term average limits have been shown to be comparably stringent to the one-hour CEV, and that the RRE modeling is thorough in testing the emissions distributions that had the following attributes:

1. The emissions used in the RRE modeling followed Appendix C of the 2014 Guidance because they reflected the distribution of emissions expected once the attainment plan had been implemented.

2. High emission events were modeled in a way that is representative of both the variability shown by the 2016 emissions data and of the expected distribution of emissions occurring in compliance with the allowable longer-term average emissions limits.

3. High emission events (i.e., hours with emissions above the CEV) were randomly placed throughout the year in the modeling in order to examine combinations of high emissions and varying meteorology.

4. Each of the 100 runs resulted in modeled design values below the NAAQS, which the commenter asserts is a stringent requirement that is equivalently stringent to the modeling results for the one-hour CEV analysis, which has the same modeling outcome.

Therefore, the commenter asserts that Pennsylvania's RRE modeling did incorporate the necessary steps to establish the comparably stringent relationship between a modeled one-hour CEV and the longer-term average limits.

The commenter also asserts that the fact that its RRE modeling approach—which EPA used in Appendix B to test the statistical adjustment approach in Appendix C—results in different longer-term average limits than the Appendix C approach in this specific case, is not contrary to the 2014 Guidance because they both demonstrate attainment. They argue that the

direct use of the submitted modeling approach can be viewed as the gold standard, with a very high level of confidence that the emissions distribution is protective of the NAAQS.

The commenter also claims that Appendix B uses an emissions distribution that is expected once the plan is in place, which is the same type of emissions data used in the Appendix C approach. The commenter continues that EPA's guidance does not require the use of the 99th percentile of historic hourly data in the future emissions profile.

The commenter is also concerned that EPA is requiring a clear link between the modeled one-hour CEV and the longer-term average emission limits even though the words "clear" and "link" do not appear in the 2014 Guidance document. Although the commenter disagrees with the requirement to demonstrate a clear link between the modeled 1-hr CEV and the longer-term average limits, and with EPA's position that its modeled future emissions scenarios must represent the worst case emissions scenarios permissible under the limit, the commenter believes that the RRE modeling has satisfied those requirements because, 1) the CEV was used as one of the bins in the modeling, thus demonstrating a clear link in the commenter's view, and 2) based on the commenter's comparison of modeled emissions (future expected emissions), and actual emissions from 2017-2021 for Keystone and Seward, the sources have actually had a fewer number of hours above the CEV than was modeled, and there have been no observed one-hour emissions from either source equaling or exceeding the highest hourly emissions used in the peak modeled emissions bin.

The commenter continues that discount factors were calculated from the RRE modeling of 0.989 for Keystone and 0.686 for Seward, which are consistent with the range of the discount values listed in Appendix D.

Response 1: In general, the commenter is misinterpreting the 2014 Guidance and conflating the use of Appendix B of the guidance as an apparent alternate method of satisfying the SIP requirements. A SIP requires that the plan provide for attainment of the NAAQS. Attainment of the NAAQS is successfully demonstrated when the affected sources operate

within the limits in the plan such that emissions from any and all variable operating scenarios are in compliance with those limits and do not lead to NAAQS violations. Modeling the maximum one-hour emission rate (i.e., the maximum allowable rate or ‘worst-case’) that yields a design concentration below the NAAQS is the means by which the SIP provides for attainment. So, a one-hour limit is the mechanism for providing for attainment in the SIP. In the alternative to the one-hour limit, the 2014 Guidance provides flexibility for developing limits with longer-term averages (up to 30-days). Appendix C describes the method to develop longer-term limits that are comparably stringent to the maximum one-hour limit. Appendix C uses the 99th percentile distribution of emissions to ensure that the longer-term limits are appropriately adjusted to be comparably stringent, and by extension, provide for attainment. Appendix B is merely a diagnostic tool using a statistical example as a back check to demonstrate that the 99th percentile consideration used in Appendix C is the appropriate means to show comparable stringency. Appendix B is not a tool which can be decoupled from Appendix C to develop limits sufficient to provide for attainment. Accordingly, the state SIP cannot be said to provide for attainment because the longer-term limits have not been shown to be comparably stringent to the one-hour maximum allowable value. The worst case emissions scenario has not been simulated (for example by a 99th percentile evaluation of the emission distribution), and therefore the RRE analysis does not demonstrate that the longer-term limit that the commenter claims is proven by the RRE analysis will provide for attainment actually does so, when it was performed by modeling future expected operating scenarios that did not simulate worst case conditions. Using Appendix B as a standalone tool to develop emission limits, as the state has done here, is not appropriate without considering worst case emissions, which is accomplished by linking to the CEV as is reflected in Appendix C. The variable emissions modeling approach used by the state provides no direct means of assessing whether any particular long-term limit is of comparable stringency to any particular one-hour limit.

The 2014 Guidance did not remove the requirement for an attainment demonstration to be based on maximum allowable emissions (as the commenter implies), nor did it recommend basing attainment modeling on an expected hourly distribution of emissions once the attainment plan had been implemented (as the commenter implies). The 2014 Guidance stated that “for SO₂ modeling, maximum allowable emissions are the basis of the emissions input to the model in accordance with Section 8 of Appendix W and past SO₂ guidance (U.S. EPA, 1994).” (2014 Guidance, pg. A-5). Furthermore, the Guidance used the term critical emission value to refer to the hourly emission rate that the model predicts would result in the 5-year average of the annual 99th percentile of daily maximum hourly SO₂ concentrations at the level of the one-hour NAAQS, given representative meteorological data for the area. (2014 Guidance, pg. 23). The guidance provided a methodology by which the maximum allowable modeled hourly emissions CEV would be clearly linked to the comparably stringent longer-term average limit. While the terms “clear” and “link” are not included in the guidance document, the methods set forth in Appendix C describe a step-by-step process by which an adjustment factor can be calculated, which would then be directly applied to the CEV to create a comparably stringent longer-term average limit. Consequently, if the CEV changed, the comparably stringent longer-term limit would also change as a result of the application of the adjustment factor.

Regardless of whether the guidance document uses the words ‘clear’ and ‘link,’ the absence of a direct showing that the limits in Pennsylvania’s SIP are comparably stringent to the one-hour limits modeled as necessary to provide for attainment means that the plan presumptively does not provide adequate assurance of attainment. Further, the commenter does not make a consistent argument that long-term limits may be justified by modeling a significantly different level of emissions (i.e., not maximum allowable emissions) than the emissions that must be modeled to determine one-hour limits.

Additionally, the adjustment factor as specified in the 2014 Guidance is derived from a statistical analysis of a set of data that reflect the emissions variability that the controlled source

is expected to exhibit. Specifically, the adjustment factor is calculated by comparing the 99th percentile of hourly emissions data (from the previously described data set) compared to the 99th percentile of the longer-term averaging period values. This comparison at the higher end of the distribution (99th percentile) of data values is purposeful because “the goal of the analyses is to identify a longer-term average limit that requires a comparable degree of control, particularly at times of greatest emissions as would be required by the 1-hr limit that would otherwise be set, the EPA would expect the analyses to compare the corresponding longer-term average and the 1-hr values among times of greatest emissions” (2014 Guidance, pg. 29). Without undertaking this comparison, EPA does not believe it is able to determine that a longer-term average limit is comparably stringent to the one-hour limit that would otherwise be necessary to demonstrate attainment of the one-hour NAAQS. The state’s plan has not evaluated how the modeled emissions compare to worst case emissions that are allowable under the long-term limits, either in terms of whether the SIP modeled the maximum allowable emissions or in terms of whether a worst case distribution of emissions was modeled. Therefore, EPA does not have evidence that the modeled emissions was a conservative distribution of emissions in relation to the relevant benchmark of worst case allowable emissions.

EPA does not agree that the RRE modeling provided this necessary type of comparably stringent analysis. First, as the commenter points out, although the CEV was used as one of the bins of hourly emission values in the modeling, the state’s longer-term limit was not based on that CEV such that if the CEV changed the longer-term limit would in turn change in the same direction. As noted in the proposal for this rule, in the supplemental modeling analysis Pennsylvania submitted for Seward, when Seward’s CEV decreased by 579 pounds per hour (lb/hr) (from 5,079 lb/hr to 4,500 lb/hr), the longer-term limit derived by Pennsylvania from the RRE modeling remained unchanged. The air quality found by modeling of variable emissions is a function of the full range of modeled emissions, influenced by the frequency and magnitude of emission values in all parts of the distribution, and so the use of the CEV as one of the bin values

provides almost no assurance that the full RRE modeling analysis which includes other binned emissions is linked in any meaningful way to the CEV.

Additionally, the RRE approach used the entire distribution of past annual hourly emissions to set a longer-term average limit, rather than the 99th percentile of annual hourly emissions, which does not satisfy EPA's recommendation to use the time of greatest emissions, and thus fails the Appendix C test for comparable stringency (2014 Guidance, pg. 29).

The commenter seems to be confused about what values in the analysis need to be comparably stringent; the commenter claims that the modeling results of the RRE modeling approach are comparably stringent to the one-hour CEV modeling because both show design values below the NAAQS. The values that need to be comparably stringent are the CEV and the longer-term limit, not the modeled SO₂ design values.

The modeled design values are dependent on the model inputs, particularly the hourly emissions modeled. While EPA recommended that the "comparably stringent" assessment be based on a set of emissions data that can be expected to reflect the variability of emissions once the subject source implements its attainment plan, this recommendation was in conjunction with the recommendation to use the times of greatest emissions (which the Guidance suggests is properly simulated by using the 99th percentile distribution), and to begin the comparably stringent analysis with the CEV. The commenter seems to have misconstrued these recommendations and incorrectly concluded that modeling an historic hourly distribution of emissions for a source in an attainment modeling demonstration could be used as a substitute to modeling maximum allowable emissions, or to determining the CEV and then adjusting that value to calculate a comparably stringent longer-term limit. Pennsylvania's RRE modeling did not model maximum allowable emissions, nor did it demonstrate a relationship between the CEV (maximum allowable hourly emission value) and the longer-term average limit as recommended in EPA's 2014 Guidance in order to enable a conclusion that the longer-term limits are comparably stringent to the one-hour CEV.

Pennsylvania's RRE analysis modeled the entire distribution of historic hourly emissions in 100 randomly assigned model runs; and in the case for Seward, it set the 30-day limit at the weighted average of hourly emissions modeled, and in the case for Keystone, it set the 24-hour limit at the longer-term value that was modeled 30% of the year. It is questionable whether either of these longer-term average limits are actually being tested in the RRE model runs, or whether the model runs only test the distribution of hourly emissions that were modeled. EPA is not confident that these RRE derived longer-term limits will act as a constraint on the distribution of future hourly emissions to the same degree as the Appendix C approach using the 99th percentile value, and therefore EPA does not have the same degree of confidence that the NAAQS will not be violated. The future hourly emissions distribution could skew towards having more frequent hourly values above or near the CEV, in which case the RRE modeling performed for these sources might not show design values complying with the NAAQS considering the modeling results from the RRE modeling resulted in design values extremely close to the 75 parts per billion (ppb) standard (as discussed in more detail below). Additionally, Pennsylvania's use of a limited number of emission bins with a high emissions "floor" adds a further disconnect from the real distribution of worse case emissions.

Appendix B provided results of a variety of emissions scenarios for a suitably adjusted longer-term average limit, which consistently resulted in design values between 39 and 59 ppb. EPA notes on page B-3 of the 2014 Guidance, "in each of these simulations a substantial number of hours (on average, just under one percent) had emissions higher than the CEV. Nevertheless, given the margin between these values and the NAAQS level of 75 ppb, this analysis indicates that the likelihood of a violation occurring with these emissions values is extremely low." The RRE modeling provided by Pennsylvania in support of Seward's 30-day limit and Keystone's 24-hour limit resulted in design values just slightly below the 75 ppb NAAQS, which provides very little margin by which hourly emissions could vary from those modeled by Pennsylvania

and not cause a violation. If Pennsylvania had properly accounted for worst case emissions allowable under the limit, it is quite possible that would have shown a violation.

Combining the impacts of using the 99th percentile of emissions statistics, and the large margin between the resultant modeled concentration in Appendix B and the level of the NAAQS, EPA is confident that a longer-term average limit based on the Appendix C methodology can be protective of the NAAQS. In contrast, the state has provided an RRE modeled demonstration of *expected* future hourly emissions, that when modeled, results in design values that come near to violating the NAAQS while also reflecting compliance with the longer-term average limits but at emissions scenarios not representative of worst case emissions levels allowed under the longer-term average limits. The State's submission does not provide confidence that a comparably stringent relationship (as the commenter claims) exists and therefore, does not provide a sufficient level of assurance that the longer-term average limits provide for NAAQS attainment.

In support of its claim that the RRE modeling demonstrated attainment using worst case emission scenarios, the commenter provided an analysis which purportedly showed that more recent emissions (2017-2021) had less hours above the CEV than the hourly emissions modeled for Seward and Keystone. However, no evidence was provided that the distribution of hourly emissions modeled by the RRE runs were comparable to the worst-case hourly emissions scenario that could occur in compliance with the longer-term emission limit. The commenter's comparison of binned hourly emissions values modeled to those that actually occurred throughout recent years, does not provide evidence of worst case hourly emissions scenarios for a one-hour NAAQS. In contrast, a different commenter provided modeling of Keystone's actual emissions from 2019-2021, which purportedly showed that modeled NAAQS violations occurred when the source was in compliance with the 24-hour limit of 9600 lb/hr, and that the source's hourly emissions exceeded the CEV during 35 hours in 2019, 69 hours in 2020, and 232 hours in 2021. This modeling analysis demonstrates that when a different emissions scenario is modeled

from Pennsylvania's RRE modeling, a NAAQS violation occurs, highlighting the importance of modeling worst case emissions to ensure attainment.

The RRE modeling approach used by Pennsylvania did not reflect the maximum possible emissions that could occur while maintaining compliance with the longer-term average emission limit, nor did the approach provide a comparably stringent analysis. Consequently, it was erroneous for EPA to fully approve the Indiana, PA SO₂ Attainment Plan in 2020, and it is necessary for EPA to correct its error by revising its action to partially approve and partially disapprove the Plan.

Comment 2: The commenter notes that the monitors do not show evidence of nonattainment, and noted that, even though the Strongstown monitor is not located in the area of the modeled maximum SO₂ concentration, previous modeling demonstrated that the Strongstown monitor would be "significantly impacted" if elevated impacts occurred elsewhere in the Indiana, PA NAA. The commenter provided data from the Strongstown monitor showing that its monitored values are decreasing and approaching values from the background monitor in South Fayette.

Response 2: EPA agrees that the monitors in Strongstown and South Fayette are reading below the standard. However, as noted by the commenter, the monitors are not located in the area of modeled maximum concentrations and therefore are not, by themselves, indicative of whether the area is meeting the SO₂ NAAQS. Although the comment makes reference to the "modeling effort," it is not clear what modeling the commenter is referring to and the commenter has not provided any other data to support the claim that the Strongstown monitor would be "significantly impacted" if elevated impacts occurred elsewhere in Indiana, PA.

SO₂ concentrations result from direct emissions from combustion sources so that concentrations are highest relatively close to sources and are much lower at greater distances due to dispersion, i.e., a strong concentration gradient. Given the source-oriented nature of this pollutant (see 75 FR at 35570, June 22, 2010), dispersion models are the most appropriate air

quality modeling tools to predict the near field concentrations and gradients of this pollutant. EPA has received dispersion modeling from a different commenter that purportedly shows modeled violations within the Indiana, PA NAA near the Indiana and Armstrong County border, using actual 2019-2021 emissions for Keystone, while the source was purportedly complying with the 24-hour limit of 9,600 lb/hr. Consequently, EPA does not regard the commenter's observations about the Strongstown monitor as providing persuasive evidence that the Area is not violating the NAAQS or that the Plan provides for attainment of the NAAQS.

Comment 3: The commenter claims that EPA is acting inconsistently because EPA approved the use of an alternative modeling method in Miami, AZ, which used Appendix C to calculate an adjustment factor, and included a supporting Appendix B modeling demonstration, which the commenter claims "definitively" confirmed the adequacy of the Appendix C calculated adjustment factor. The commenter argues that Appendix B was used as an essential component of the SIP because Appendix C was used in an application not addressed in EPA's 2014 Guidance. Further, the commenter argues that the regulatory requirement is attainment of the NAAQS. The commenter alleges that this disapproval is arbitrary and capricious because it proposes to interpret the guidance differently in two nonattainment areas and apply it inconsistently without any explanation for the inconsistency.

Response 3: EPA disagrees that it has applied the 2014 Guidance inconsistently between the Indiana, PA attainment plan and the Miami, AZ attainment plan. As the commenter noted, a significant difference between the two plans is that the Arizona plan used the Appendix C methodology to calculate a comparably stringent longer-term average limit, and then provided additional modeling to analyze whether the longer-term emission limit derived using Appendix C was reasonably likely to be protective of the NAAQS. In contrast, Pennsylvania used RRE modeling to arrive at the longer-term average limit without demonstrating comparable stringency to the one-hour CEV. The Arizona longer-term limit was calculated by obtaining a ratio of the 99th percentile of hourly emissions compared to the 99th percentile of longer-term average values

as recommended by EPA. This ratio or adjustment factor was then applied to the CEV, thus taking into account the times of greatest emissions and linking the longer-term limit to the maximum modeled emission value (CEV), accordingly. Although the Arizona plan included an RRE-type (i.e., Appendix B) assessment of projected air quality, EPA did not rely on that assessment and made no reference to it in its final rule, insofar as the SIP was approvable without regard to the merits of the assessment.

In contrast, the longer-term limits for Keystone and Seward in the Indiana, PA attainment plan were developed using only RRE modeling, which modeled the entire distribution of historic hourly emissions and based the limit on the 24-hour values that were modeled 30% of the time (Keystone) and the weighted annual average (Seward), neither of which considered the 99th percentile statistics of the historic hourly data set (times of greatest emissions), and neither of which were linked to the maximum modeled hourly emission rate (CEV). While sources can use approaches other than Appendix C to derive a longer-term average limit, the evidence that the other approach will result in attainment needs to be as compelling. EPA believes that any approach used should begin with the CEV, and account for times of greatest emissions in setting a longer-term limit. EPA also has noted that supplemental limits may be necessary to further constrain the frequency and magnitude of these worst case emission episodes.

Due to these clear differences in approaches, EPA is not acting inconsistently in our actions on the Indiana, PA and Miami, AZ attainment plans as the commenter claims; rather, EPA is applying the 2014 Guidance consistently across rather dissimilar situations.

Comment 4: The commenter claims that EPA's action is arbitrary and capricious because the disapproval is not based on a rational connection between the facts found and the choice made. The commenter asserts that the facts in the record show that Appendix B is the proof of the statistical analysis in Appendix C, and that using the Appendix B approach is a more robust, thorough way to show that a longer-term emission limit can be protective of the NAAQS. The commenter claims that the use of the Appendix B approach is consistent with EPA's

requirements for an approvable SIP: “...as the EPA explained in our 2014 SO₂ Guidance and in numerous proposed and final SIP actions implementing the SO₂ NAAQS, a key element of an approvable SIP is the required modeling demonstration showing that the remedial control measures and strategy are adequate to bring a previously or currently violating area into attainment.” 84 FR 8815, March 12, 2019. EPA is now seemingly self-contradictory and believes that Appendix B does not provide a longer-term emission limit that is equivalently stringent to the one-hour limit. Nothing in the record supports making this determination, the commenter claims.

Response 4: EPA disagrees with the commenter and believes the commenter has misunderstood the purpose of Appendix B of the 2014 Guidance. First, the EPA language quoted by the commenter is referring to the modeling performed to determine the CEV, which is a one-hour limit for SO₂ emissions, rather than a longer-term limit. Also, as noted in the 2014 Guidance, “Appendix B documents analyses that the EPA has conducted to evaluate the extent to which longer-term limits that have been *adjusted to have comparable stringency* to one-hour limits as the critical emissions value provide for attainment.” (pg. 25). Also, as noted in the Guidance, “at issue is the likelihood that a source complying with a 30-day average limit ***reflecting the adjustment generally recommended in this guidance*** [emphasis added] would have sufficiently high emissions on a sufficient fraction of the potential exceedance days to cause an SO₂ NAAQS violation.” (pg. B-2). In each of the modeling simulations run by EPA in support of the Appendix C methodology, the estimated design values obtained were between 39 and 58 ppb, and thus EPA stated, “Given the margin between these values and the NAAQS level of 75 ppb, this analysis indicates that the likelihood of a violation occurring with these emissions values is extremely low.” (pg. B-3). Thus, the modeling exercise was conducted as a test on emission limits that were considered comparably stringent with the CEV (i.e., comparably stringent longer-term emission limits, and not simply “longer-term” emission limits); it was not used to develop the comparably stringent longer-term limits because, as noted, the results of the

Appendix B analyses yielded a range of estimated design values and EPA did not select a specific modeling scenario result to rely upon as an attainment demonstration. Rather, EPA used the analysis as support that the comparably stringent longer-term limit derived using the Appendix C methodology, notwithstanding infrequent hourly emissions spikes above the CEV, could nevertheless protect the NAAQS.

The commenter's claim that Appendix B is a "proof" of the statistical analysis in Appendix C is not substantiated. A mathematical proof of a theorem should show that the theorem holds true at all times so long as any constraints set forth by the theorem are followed (e.g., theorem only applies to prime numbers). In Appendix B, EPA summarizes modeling exercises that were conducted using the emission patterns that could be expected even when a source is just barely complying with a long-term average emission limit. (2014 Guidance, at B-4). Based on this, EPA concluded that these analyses indicated "that suitably adjusted longer-term average limits can generally be expected to provide adequate confidence that the attainment plan will provide for attainment." (pg. B-2). Words such as "generally" and "adequate confidence" are not words used to describe a mathematical proof.

The modeling analyses were one piece of evidence that provided more confidence to EPA that a comparably stringent longer-term limit (set using the 99th percentile of emissions statistics) can be protective of a one-hour NAAQS, but the Appendix B modeling analyses did not "prove" that a longer-term limit set via other methods that went through 100 model runs with a specified hourly emissions distribution and that modeled attainment would provide the same level of confidence that the limit is protective of the one-hour NAAQS. More specifically, Pennsylvania modeled hourly values that, when averaged over a 24-hour day, equaled less than the 24-hour limit for 70% of the year for Keystone. That is, while the 24-hour limit for Keystone was set at 9,600 lb/hr, the hourly emissions that were modeled averaged between 5,000 and 8,964 lb/hr on a 24-hour basis for 70% of the year; and the hourly emissions that were modeled averaged 9,600 lb/hr on a 24-hour basis for 30% of the year. Pennsylvania did not scale the data

set such that the modeled hourly values resulted in 24-hour averages that just met the 24-hour limit of 9,600 lb/hr. Therefore, it's questionable whether the RRE modeling actually tested the 24-hour limit for Keystone. If the 24-hour averaged emissions varied from those that were modeled, such that 50% or 100% of the 24-hour averages equaled 9,600 lb/hr (the limit) rather than only 30%, it is uncertain that the modeled concentrations would still result in attainment. On the other hand, EPA's methods for determining a comparably stringent limit do provide confidence that changes in the hourly emissions distribution while in compliance with the longer-term limit will still provide for attainment. Tellingly, at no point does the guidance recommend use of the methods described in Appendix B as a means of determining suitable limits or of determining whether limits determined by other means (whether of comparable stringency to a one-hour limit at the CEV or not) will suitably provide for attainment. Thus, characterizing Appendix B as 'proof' of the Appendix C theorem is off base.

Comment 5: A different commenter claims that longer-term limits are fundamentally incapable of protecting a one-hour NAAQS. The commenter provided an updated analysis of Keystone's actual hourly emissions for the years 2018 through 2021 which showed that the source exceeded the CEV over 500 hours. The commenter noted that 2021 was worse than 2020. The analysis also showed that Seward exceeded the CEV 71 times in that same period (4 years). The commenter believes that the NAAQS will not be attained if just four hours on four days have ambient concentrations above 75 ppb, and thus concludes that longer-term emissions averaging cannot protect the NAAQS. The commenter therefore asserts that the current emission limits in the SIP for Keystone and Seward are inadequate to protect air quality.

In addition, the commenter calculated a conversion factor for Keystone using Appendix C and the more recent 2018-2021 hourly emissions data and noted the analysis yields a limit of 8,292.5 lb/hr (24-hour daily average), which is below the current limit of 9,600 lb/hr as a 24-hour daily average.

Response 5: EPA disagrees with the commenter's assertion that a longer-term limit, so long as it is properly set, cannot protect a one-hour NAAQS. But that abstract issue is not being decided in this action. In this case, EPA agrees with the commenter that the specific longer-term limits for Keystone and Seward were not set at a level that ensures the protection of the one-hour SO₂ NAAQS, since they were not shown to be comparably stringent to a modeled attaining one-hour CEV. EPA agrees with the commenter that the longer-term limits for Keystone and Seward do not ensure protection of the NAAQS, and with this action will finalize disapproval of the attainment demonstration.

Comment 6: The commenter provided recent air quality modeling allegedly demonstrating that SO₂ emissions from Keystone, Conemaugh, and Seward continue to cause nonattainment in Pennsylvania, both inside and outside the Indiana NAA. The air quality modeling submitted with the comment, which used actual emissions from Keystone from 2019 through 2021, purportedly demonstrates that Keystone is causing violations of the NAAQS (209.9 micrograms per cubic meter (ug/m³)). The commenter also provided annual SO₂ emissions for Keystone, which show lower annual emissions in 2020 (13,011 tons per year), but other years range from 17,000-24,000 tons per year. Using actual emissions for various three-year time periods from 2015-2017 through 2019-2021, the commenter provided modeling demonstrating that Seward and Conemaugh cause violations of the NAAQS (244.6 ug/m³ – 275.4 ug/m³)³ outside the nonattainment area.

Response 6: EPA believes that this final rule may result in Pennsylvania adopting tighter SO₂ emission limits for both Keystone and Seward which will reduce their hourly emissions and better provide for reductions in SO₂ concentrations towards achieving attainment of the NAAQS, subject to EPA's evaluation of any such future limits.

³ In the Round 3 intended designations (82 FR 41903) published September 5, 2017, EPA endorsed a value of 196.4 ug/m³ (based on calculations using all available significant figures) as equivalent to 75 ppb.

Regarding the commenter's modeling, which seems to show modeled SO₂ NAAQS violations in Westmoreland and Cambria counties in Pennsylvania outside the boundaries of the Indiana NAA, EPA notes that it is not basing its partial disapproval of the Indiana attainment plan on these modeled NAAQS violations outside of the Indiana NAA. As stated in the proposal for this action, EPA is planning a separate regulatory action under the Clean Air Act to address those modeled NAAQS violations.

Comment 7: The commenter states that Conemaugh and Seward's SO₂ pollution implicates serious environmental justice (EJ) concerns. The commenter provided an EJ Screen analysis which indicates that southeast of Seward the population is characterized by low incomes and generally elderly population. The commenter also overlaid the modeled violations of the NAAQS with the EJ screen map showing that the modeled violations are impacting the identified vulnerable population. The commenter asserts that this adds urgency to the need for attainment to be achieved and SO₂ emissions from Conemaugh and Seward to be properly limited.

Response 7: EPA's analysis in the notice of proposed rulemaking showed similar results to the commenter's EJ screen analysis and indicated communities with environmental justice concerns both inside and outside the Indiana nonattainment area. EPA therefore encourages Pennsylvania to be as expeditious as practicable in developing its new attainment plan limits in order to address the emissions impact on the vulnerable populations both inside the current nonattainment area, and in adjacent areas.

IV. Final Action

EPA is partially approving and partially disapproving the Indiana, PA attainment plan as a correction of its erroneous prior full approval action and as a revision to the Pennsylvania SIP. See CAA section 110(k)(6). Specifically, EPA is disapproving the attainment demonstration, RACT/RACM determination, RFP requirements, and contingency measures. EPA is retaining the approval of the emissions inventory and the NNSR program.

This action initiates a sanctions clock under CAA section 179, providing for emission offset sanctions for new sources if EPA has not fully approved a revised SIP attainment plan within 18 months after final partial disapproval, and providing for highway funding sanctions if EPA has not fully approved a revised plan within 6 months thereafter. The sanctions clock can be stopped only if the conditions of EPA's regulations at 40 CFR 52.31 are met. This action also initiates an obligation for EPA to promulgate a Federal implementation plan within 24 months unless Pennsylvania has submitted, and EPA has fully approved, a plan addressing these attainment planning requirements.

V. Statutory and Executive Order Reviews

Additional information about these statutes and Executive Orders can be found at www.epa.gov/laws-regulations/laws-and-executive-orders.

A. Executive Order 12866: Regulatory Planning and Review and Executive Order 13563: Improving Regulation and Regulatory Review

This action is not a significant regulatory action and was therefore not submitted to the Office of Management and Budget (OMB) for review.

B. Paperwork Reduction Act (PRA)

This action does not impose an information collection burden under the PRA, because this SIP partial approval and partial disapproval does not in-and-of itself create any new information collection burdens, but simply partially approves and partially disapproves certain State requirements for inclusion in the SIP.

C. Regulatory Flexibility Act (RFA)

I certify that this action will not have a significant economic impact on a substantial number of small entities under the RFA. This action will not impose any requirements on small entities. This SIP partial approval and partial disapproval does not in-and-of itself create any new requirements but simply partially approves and partially disapproves certain pre-existing State requirements for inclusion in the SIP.

D. Unfunded Mandates Reform Act (UMRA)

This action does not contain any unfunded mandate as described in UMRA, 2 U.S.C. 1531-1538, and does not significantly or uniquely affect small governments. This action does not impose additional requirements beyond those imposed by state law. Accordingly, no additional costs to state, local, or tribal governments, or to the private sector, will result from this action.

E. Executive Order 13132: Federalism

This action does not have federalism implications. It will not have substantial direct effects on the states, on the relationship between the national government and the states, or on the distribution of power and responsibilities among the various levels of government.

F. Executive Order 13175: Coordination With Indian Tribal Governments

This action does not have tribal implications, as specified in Executive Order 13175, because the SIP EPA is disapproving would not apply on any Indian reservation land or in any other area where the EPA or an Indian tribe has demonstrated that a tribe has jurisdiction, and will not impose substantial direct costs on tribal governments or preempt tribal law. Thus, Executive Order 13175 does not apply to this action.

G. Executive Order 13045: Protection of Children From Environmental Health Risks and Safety Risks

The EPA interprets Executive Order 13045 as applying only to those regulatory actions that concern environmental health or safety risks that the EPA has reason to believe may disproportionately affect children, per the definition of “covered regulatory action” in section 2-202 of the Executive order. This action is not subject to Executive Order 13045 because this SIP partial approval and partial disapproval does not in-and-of itself create any new regulations, but simply partially approves and partially disapproves certain pre-existing State requirements for inclusion in the SIP.

H. Executive Order 13211: Actions That Significantly Affect Energy Supply, Distribution, or Use

This action is not subject to Executive Order 13211, because it is not a significant regulatory action under Executive Order 12866.

I. National Technology Transfer and Advancement Act (NTTAA)

Section 12(d) of the NTTAA directs the EPA to use voluntary consensus standards in its regulatory activities unless to do so would be inconsistent with applicable law or otherwise impractical. The EPA believes that this action is not subject to the requirements of section 12(d) of the NTTAA because application of those requirements would be inconsistent with the CAA.

J. Executive Order 12898: Federal Actions To Address Environmental Justice in Minority Populations and Low-Income Population

The EPA lacks the discretionary authority to address environmental justice in this rule.

K. Congressional Review Act (CRA)

This action is subject to the CRA, and the EPA will submit a rule report to each House of the Congress and to the Comptroller General of the United States. This action is not a “major rule” as defined by 5 U.S.C. 804(2).

L. Petitions for Judicial Review

Under section 307(b)(1) of the CAA, petitions for judicial review of this action must be filed in the United States Court of Appeals for the appropriate circuit by [INSERT DATE 60 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER]. Filing a petition for reconsideration by the Administrator of this final rule does not affect the finality of this rule for the purposes of judicial review nor does it extend the time within which a petition for judicial review may be filed, and shall not postpone the effectiveness of such rule or action. This action pertaining to the partial approval and partial disapproval of the Indiana, PA SO₂ attainment plan, may not be challenged later in proceedings to enforce its requirements. (See section 307(b)(2).)

List of Subjects in 40 CFR Part 52

Environmental protection, Air pollution control, Incorporation by reference, Intergovernmental relations, Reporting and recordkeeping requirements, Sulfur oxides.

Adam Ortiz,
Regional Administrator,
Region III.

For the reasons stated in the preamble, the EPA amends 40 CFR part 52 as follows:

PART 52—APPROVAL AND PROMULGATION OF IMPLEMENTATION PLANS

1. The authority citation for part 52 continues to read as follows:

Authority: 42 U.S.C. 7401 *et seq.*

Subpart NN—Pennsylvania

2. In § 52.2020, the table in paragraph (e)(1) is amended by adding an entry “Attainment Plan for the Indiana, Pennsylvania Nonattainment Area for the 2010 Sulfur Dioxide Primary National Ambient Air Quality Standard” at the end of the table to read as follows:

§ 52.2020 Identification of plan.

* * * * *

(e)***

(1) ***

Name of non-regulatory SIP revision	Applicable geographic area	State submittal date	EPA approval date	Additional explanation
* * * * *				
Attainment Plan for the Indiana, Pennsylvania Nonattainment Area for the 2010 Sulfur Dioxide Primary National Ambient Air Quality Standard	Indiana County and portions of Armstrong County (Plumcreek Township, South Bend Township, and Elderton Borough)	10/11/17, Supplemental information submitted 02/05/20, updated redacted permits submitted on 05/13/20	<u>[INSERT DATE OF PUBLICATION IN THE FEDERAL REGISTER].</u> <u>[INSERT FEDERAL REGISTER CITATION].</u>	Partial Disapproval (attainment demonstration, Reasonably Available Control Technology (RACT)/Reasonably Available Control Measures (RACM) determination, Reasonable Further

			10/19/20, 85 FR 66255	Progress (RFP) requirements, contingency measures) and Partial Approval (emissions inventory and nonattainment new source review (NNSR) program) 52.2033(f)
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4. Amend § 52.2033 by revising paragraph (f) to read as follows:

§52.2033 Control strategy: Sulfur oxides.

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(f) EPA partially approves and partially disapproves the attainment demonstration State Implementation Plan for the Indiana, PA Sulfur Dioxide Nonattainment Area submitted by the Pennsylvania Department of Environmental Protection on October 11, 2017 and updated on February 5, 2020, and corrected permits submitted on May 13, 2020. EPA approves the base year inventory and the Nonattainment New Source Review (NNSR) requirements, and disapproves the attainment demonstration, Reasonably Available Control Technology (RACT)/Reasonably Available Control Measures (RACM) determination, Reasonable Further Progress (RFP) requirements and contingency measures.

[FR Doc. 2022-17449 Filed: 8/17/2022 8:45 am; Publication Date: 8/18/2022]